Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALESSANDRO CESARE CALLEGARI,
CHRISTOS DIMITRIOS DIMITRAKOPOULOS
and SAMPATH PURUSHOTHAMAN

Appeal No. 2004-0655
Application No. 09/740,721

ON BRIEF

Before KIMLIN, PAK and PAWLIKOWSKI, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 18 and 20-29, all the claims remaining in the present application.

Claim 18 is illustrative:

18. A thin film transistor device for processing in fabrication and operation in an about 25 to 150 degree C. temperature range comprising:

a substrate on which an electrically conducting gate electrode is positioned,

a layer of inorganic gate insulation positioned on said substrate and over said gate electrode,

a layer of an organic semiconductor positioned in contact with said layer of gate insulation, and,

source and drain electrodes in contact with said organic semiconductor layer in registration with respect to said gate electrode.

In the rejection of the appealed claims, the examiner relies upon the following references:

Lancaster et al. (Lancaster)	5,510,638	Apr. 23, 1996
Aratani et al. (Aratani)	5,705,826	Jan. 06, 1998
Dimitrakopoulos et al. (Dimitrakopoulos)	5,946,551	Aug. 31, 1999
Risch et al. (Risch)	6,300,652 B1	Oct. 09, 2001 (Filed Nov. 22, 1996)

A.R. Brown et al. (Brown), "Precursor route pentacene metal-insulator-semiconductor field-effect transistors," 79 Journal of Applied Physics no. 4, 2136-38 (15 February 1996)

Appellants' claimed invention is directed to a thin film transistor device comprising a gate electrode on a substrate, a layer of inorganic gate insulation material on the substrate and over the gate electrode, a layer of an organic semiconductor in contact with the layer of gate insulation, and source and drain electrodes in contact with the organic semiconductor layer and in registration with the gate electrode. According to appellants' specification:

> The invention broadens the range of materials and processes available for TFT devices by providing in the device structure an organic semiconductor layer that is in contact with an inorganic mixed oxide gate insulator involving processing with the types of processing techniques that can take place at a temperature range from about room temperature to about 150 degrees C.

(Page 2, last paragraph). The specification further relates that:

> What has been described here is the broadening of the range of materials and processes that are available for TFT devices by providing in the device structure an organic semiconductor layer that is in contact with an inorganic mixed oxide gate insulator wherein the processing is with the types of techniques that can take place in a room temperature vicinity range.

(Page 17, last paragraph). Hence, according to the specification, the advantage of processing the claimed devices at low temperatures is brought about by utilizing an organic semiconductor layer in contact with the inorganic mixed oxide gate insulator.

Appealed claims 18, 20, 21 and 24-26 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Aratani. Claims 18 and 20-29 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Dimitrakopoulos. In addition, claims 22, 27 and 28 stand rejected under 35 U.S.C. § 103 as being unpatentable over Aratani in view of Lancaster and Risch, and claim 29 stands

rejected under 35 U.S.C. § 103 as being unpatentable over the stated combination of references further in view of Brown.

Appellants assert at page 4 of the principal brief that "[t]he claims do not all stand or fall together." However, the Argument sections of appellants' principal and reply briefs fail to present an argument that is reasonably specific to any particular claim on appeal. Furthermore, appellants' arguments are limited to the § 102 rejections over Aratani and Dimitrakopoulos. Appellants fail to address the examiner's § 103 rejections. Accordingly, all the appealed claims stand or fall together with claim 18, and we will limit our consideration of appellants' appeal to the examiner's § 102 rejections of claim 18. In re Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987); Ex parte Schier, 21 USPQ2d 1016, 1018-19 (Bd. Pat. App. & Int. 1991).

We have thoroughly reviewed each of appellants' arguments for patentability. However, we are in complete agreement with the examiner that the claimed subject matter is unpatentable over the cited prior art. Accordingly, we will sustain the examiner's rejections for essentially those reasons expressed in the Answer, and we add the following primarily for emphasis.

Appellants do not dispute the examiner's factual determination that both Aratani and Dimitrakopoulos describe a thin film transistor device comprising the presently claimed substrate on which an electrically conducting gate electrode is positioned, a layer of inorganic gate insulation on the substrate and over the gate electrode, a layer of an organic semiconductor positioned in contact with the gate insulation layer, as well as source and drain electrodes in contact with the organic semiconductor layer and in registration with the gate electrode. Rather, it is appellants' contention that "[t]here is one overriding issue on whether, in essence, the terminology 'within a temperature range from about 25 to 150 degrees C. in fabrication and operation' can serve as a patentability conveying limitation in both the independent claims" (principal brief, paragraph bridging pages 3-4). As urged by appellants and conceded by the examiner in the Answer, each claim limitation must be considered in determining patentability. In the present case, placing the claim language at issue in a light most favorable to appellants, we will interpret the claim language as defining a property of the claimed device. However, it cannot be gainsaid that the language "for processing and fabrication and operation" is of considerable breadth, and we agree with the

examiner's analysis that the claim language encompasses using the device at normal, ambient temperatures.

Neither Aratani nor Dimitrakopoulos expressly discloses that the inventive device is "for processing and fabrication and operation in and about 25 to 150 degrees C. temperature range." However, it is well settled that when a claimed product reasonably appears to be substantially the same as a product disclosed by the prior art, the burden is on the applicant to prove that the prior art product does not necessarily or inherently possess characteristics attributed to the claimed product. In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990); In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In the present case, we find sufficient correspondence between devices within the scope of the appealed claims and the devices disclosed by Aratani and Dimitrakopoulos to support the reasonable conclusion that the devices of Aratani and Dimitrakopoulos possess the claimed property. The devices of appellants, Aratani and Dimitrakopoulos all comprise a gate electrode on a substrate, a layer of inorganic gate insulation positioned on the substrate and over the gate electrode, and a layer of an organic semiconductor in contact with the gate insulation layer. Hence, since appellants' specification, as

noted above, attributes the claimed property to the use of the organic semiconductor layer in contact with the gate insulation layer, we find it reasonable to conclude that thin film transistor devices within the scope of the appealed claims and those disclosed by Aratani and Dimitrakopoulos share substantially the same properties, at least to the extent broadly claimed. As explained by the examiner, appellants have pointed to no difference in structure between the claimed and prior art devices, nor have appellants proffered any objective evidence which demonstrates that the devices of Aratani and Dimitrakopoulos do not, in fact, possess the claimed property. Furthermore, to the extent that the claim language "processing and fabrication" includes the process of making the thin film transistor device, the limitation is product-by-process in nature, and does not further limit the structure of the claimed device. In addition, the examiner has properly found that Dimitrakopoulos' disclosure of processing the device at 150°C meets the claim limitation at issue by describing a temperature that falls within the claimed temperature range.

In conclusion, based on the foregoing and the reasons set forth by the examiner, the examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

EDWARD C. KIMLIN Administrative Patent Judge	)	
CHUNG K. PAK Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
BEVERLY PAWLIKOWSKI Administrative Patent Judge	)	

ECK:clm

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